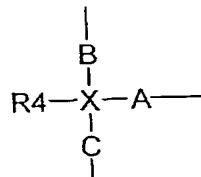


IN THE CLAIMS

1. cancelled
2. (currently amended) ~~Medicine according to The method of claim 14, characterised in that wherein R1, R2, R3 are advantageously identical to each other and represent methyl or ethyl groups.~~
3. (currently amended) ~~The method of claim 14, wherein Medicine according to either claim 1 or 2, characterised in that R5, R6, R7, R8 are advantageously identical to each other and represent hydrogen atoms or methyl groups.~~
4. (currently amended) ~~The method of claim 14, wherein Medicine according to any one of claims 1 to 3, characterised in that the group~~



is advantageously a hydrophilic group of 1 to 6 carbon atoms.

5. (currently amended) ~~The method of claim 14, wherein Medicine according to any one of claims 1 to 4, characterised in that the hydrophilic group(s) is (are) selected from the typically chosen from among groups with formula -L-Q, in which L is a chemical bond or an alkyl group in C1 - C6, linear or ramified and Q is chosen from among:~~

- a) a hydroxyl, amine, carboxyl, sulphate or phosphate group;
- b) a linear or ramified C1 - C6 alkyl group containing one or several hydroxyl, amine, carboxyl, sulphate, phosphate groups;

c) an M, OM, CONHM, NHCOM group in which M is a hydrophilic group; or

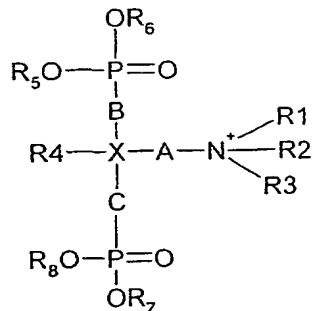
d) a hydrophilic group according to points a), b) or c), protected by a group that becomes a hydrophilic group again after a biological hydrolysis.

6. (currently amended) The method according to claim 14, wherein said formula 1 further ~~Medicine according to any one of claims 1 to 6, characterised in that the compound with formula I comprises two phosphonic groups and one quaternary ammonium group.~~

7. (currently amended) The method of claim 14, wherein the polyphosphonate compound is 2,2-diphosphono-5-hydroxy-3-oxa-6-hexyltrimethylammonium chloride, for use as a medicine.

8. (currently amended) An oral hygiene composition ~~Composition for mouth hygiene by topical method, characterised in that it comprises~~ comprising:

a polyphosphonate compound having a structure represented by formula I: with the following formula I:



(I)

in which wherein:

R1, R2, R3, R4, R5, R6, R7, R8, X, A, B and C are as defined in claim 1,

or one of its pharmaceutically acceptable salts,
or a mix of such polyphosphonate compounds.

R1, R2, R3, R5, R6, R7, R8 represent an atom of hydrogen or an alkyl or aryl group in C1 - C6, independently of each other;

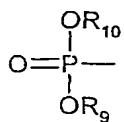
X is a carbon C atom or a nitrogen N atom;

A represents an alkyl or aryl group in C1 - C6, a carbonyl group or a hydrophilic group, B and C represent a chemical bond, an alkyl or aryl group in C1 - C6, a carbonyl group, or a hydrophilic group; and

R4 represents:

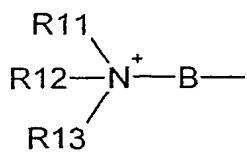
a hydrogen atom, an OH group, an alkyl or an aryl group in C1 - C6, or a carboxylic acid in C1 - C6, a free doublet (if X is a nitrogen N);

a phosphonate with formula:



in which R9, R10 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6, independently of each other;

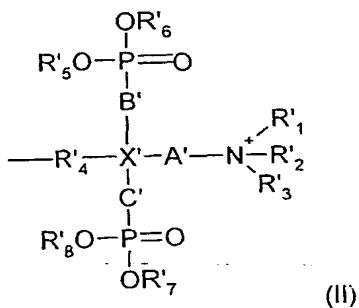
a quaternary ammonium group with formula:



in which R11, R12, R13 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6 independently of each other, and B represents a chemical bond, an alkyl group in C1 - C6, a carbonyl group or a hydrophilic group;

a hydrophilic group;

a polyphosphonate group with the following general formula II:



wherein:

- R'1, R'2, R'3, R'5, R'6, R'7, R'8 represent an atom of hydrogen, or an alkyl or an aryl group in C1 - C6, independently of each other;

- X' is a C atom or an N atom;

- A', B' and C' represent a chemical bond, an alkyl or an aryl group in C1 - C6, a carbonyl group, or a hydrophilic group;

- and R'4 represents an alkyl or an aryl group in C1 - C6, or a carboxylic acid in C1 - C6;

a mixture of such polyphosphonate compounds; or

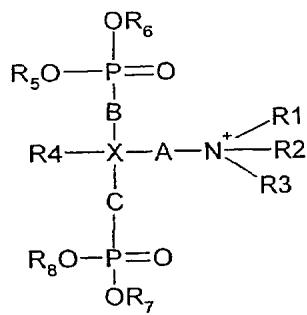
a pharmaceutically acceptable salts, thereof.

9. (currently amended) An oral hygiene composition according to claim 8, wherein said polyphosphonate compound is present in an amount about ~~composition according to claim 8, characterised in that it comprises between 0.01% and to 20% by weight., advantageously between 0.05 and 5%, and even better between about 0.1 and 2% by weight of compound I.~~

10. (currently amended) Composition according to either claim 8 or 9, characterised in that it also comprises at least one of the elements chosen from among an antibacterial agent, polishing agent, thickening agent, moisturising agent, aroma, sweetening agent, bleaching agent. An oral hygiene composition according to claim 8, wherein said phosphate is present in an amount 0.05% to 5% by weight.

11. (currently amended) ~~Composition according to any one of claims 8 to 10, characterised in that it is in the form of a mouthwash, a spray liquid, a toothpaste, a tooth gel. An oral hygiene composition according to claim 8, wherein said phosphate is present in an amount 0.1% to 2% by weight.~~

12. (currently amended) ~~Use of a polyphosphonate compound with formula I:~~



(I)

~~in which R₁, R₂, R₃, R₄, R₅, R₆, R₇, R₈, X, A, B and C are as defined in claim 1,~~

~~or one of its pharmaceutically acceptable salts, for making a medicine intended to inhibit the appearance and development of dental plaque. An oral hygiene composition according to claim 8, further comprising at least one of the elements selected from the group consisting of an antibacterial agent, polishing agent, thickening agent, moisturizing agent, aroma, sweetening agent, and a bleaching agent.~~

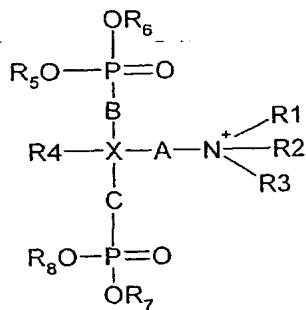
13. (currently amended) ~~Use according to claim 12, characterised in that the compound I is chosen from among:~~

~~— 2,2-diphosphono-5-hydroxy-3-oxa-6-hexyltrimethylammonium chloride and,~~

~~— 6-trimethylammoniohexyl-1,1-bisphosphonic acid. An oral hygiene composition according to claim 8, which is in the form of a mouthwash, a spray liquid, a toothpaste, or a tooth gel.~~

14. (new) A method of inhibiting the appearance and development of dental plaque, comprising:

topically applying in a mouth or on the surface of teeth a polyphosphonate compound having a structure represented by formula I:



(I)

wherein R1, R2, R3, R5, R6, R7, R8 represent an atom of hydrogen or an alkyl or aryl group in C1 - C6, independently of each other;

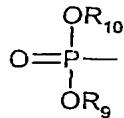
X is a carbon C atom or a nitrogen N atom;

A represents an alkyl or aryl group in C1 - C6, a carbonyl group or a hydrophilic group, B and C represent a chemical bond, an alkyl or aryl group in C1 - C6, a carbonyl group, or a hydrophilic group; and

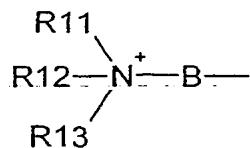
R4 represents:

a hydrogen atom, an OH group, an alkyl or an aryl group in C1 - C6, or a carboxylic acid in C1 - C6, a free doublet (if X is a nitrogen N);

a phosphonate with formula:



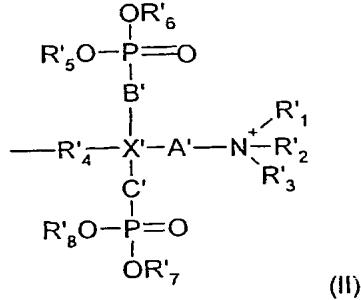
in which R9, R10 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6, independently of each other;
a quaternary ammonium group with formula:



in which R11, R12, R13 represent a hydrogen atom, or an alkyl or an aryl group in C1 - C6 independently of each other, and B represents a chemical bond, an alkyl group in C1 - C6, a carbonyl group or a hydrophilic group;

a hydrophilic group;

a polyphosphonate group with the following general formula II:



wherein:

- R'1, R'2, R'3, R'5, R'6, R'7, R'8 represent an atom of hydrogen, or an alkyl or an aryl group in C1 - C6, independently of each other;
- X' is a C atom or an N atom;
- A', B' and C' represent a chemical bond, an alkyl or an aryl group in C1 - C6, a carbonyl group, or a hydrophilic group;
- and R'4 represents an alkyl or an aryl group in C1 - C6, or a carboxylic acid in C1 - C6;

a mixture of such polyphosphonate compounds; or
a pharmaceutically acceptable salt thereof.

15. (new) The method of claim 14, wherein the
polyphosphonate compound is
- 6-trimethylammoniohexyl-1,1-bisphosphonic acid.